



City of  
**Belmont**

# Urban Forest Strategy 2025–2030



Acknowledgement of Country

The City of Belmont acknowledges the Whadjuk Noongar people as the Traditional Owners of this land and we pay our respects to Elders past, present and emerging. We further acknowledge their cultural heritage, beliefs, connection and relationship with this land which continues today.

We acknowledge all Aboriginal and Torres Strait Islander peoples living within the City of Belmont.

Detail of Jupp Lane mural by Shane Yondee Hansen

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## City of Belmont contact information

Physical Address: 215 Wright Street, Cloverdale WA 6105  
 Postal Address: Locked Bag 379, Cloverdale WA 6985  
 Switchboard: +61 (08) 9477 7222 Fax: (08) 9478 1473  
 After-hours: +61 (08) 9477 7224 TTY: (08) 9479 5145  
 Website: [belmont.wa.gov.au](http://belmont.wa.gov.au)  
 E-mail: [belmont@belmont.wa.gov.au](mailto:belmont@belmont.wa.gov.au)

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The recommended reference for this publication is City of Belmont (2023) Urban Forest Strategy (Revision 2023), Parks, Leisure and Environment, City of Belmont.

## Executive summary

The City of Belmont is the 'City of Opportunity'. It is the gateway to Perth, home to a diverse and harmonious community with thriving industrial and commercial precincts yet situated on the picturesque banks of the Derbarl Yerrigan (Swan River). It is also home to a diverse range of landscapes rich in natural beauty.

The City of Belmont recognises the urban forest as an important asset

which shapes the liveability, character, and landscape of our City, and provides a range of social, economic, and environmental benefits shared by the community.

As urban populations grow and density increases, access to high-quality greenspace is becoming increasingly important in promoting community health and wellbeing. At the same time, it is becoming more difficult to establish and retain trees

in highly constrained urban environments – a challenge which will be exacerbated by a warming climate and population growth.

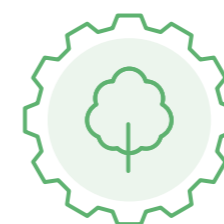
A thriving and resilient urban forest is integral to achieving the City's vision for a green, healthy, and well-connected City. In recognition of this, the *Urban Forest Strategy 2025-2030* outlines the City's commitment to protect, enhance and expand the urban forest.

### Our vision for the City's urban forest

The City of Belmont will be recognised as a desirable inner-city location, with a high-quality urban forest supporting a healthy, diverse, and thriving community.

To support this vision, the strategy proposes two (2) key focus areas:

1



**Manage  
and protect**  
our existing urban  
forest assets

2



**Expand  
and enhance**  
the urban forest,  
promoting  
resilience, diversity  
and connectivity

# 1 Introduction



## 1.1 Context

The City recognises the urban forest as an important element of community infrastructure. To ensure a thriving and resilient urban forest remains a feature of Belmont into the future, it must be a key consideration in strategic planning and decision making. The Urban Forest Strategy 2025-2030 outlines the City's long-term vision for the urban forest and provides a framework to deliver this vision.

Our urban forest is made up of City and State managed land (21%) and private land (79%) both of which contribute to the liveability of our City. The retention and development of a healthy urban forest is a responsibility shared by all landholders including government, industry, and the community. The advantages are also shared, extending beyond lot boundaries to benefit the community as a whole<sup>1</sup>. It is important to note the City's management authority only applies to land

under its care and control. However, the City will continue to promote the importance of the urban forest and work with other landholders to identify greening opportunities that improve connectivity throughout the public and private realm.

The City of Belmont adopted its first Urban Forest Strategy in 2014. At that time, the City was identified as having one of the lowest canopy covers in the Perth metropolitan area<sup>2</sup>. The strategy outlined a plan to expand the urban forest through delivery of a targeted tree planting program, introduction of community-based greening initiatives, and operational alignment with industry best-practice. This approach has consistently delivered increases in canopy cover throughout the public realm, but with an estimated 65% of the urban forest located on privately owned land, this remains the City's biggest challenge.

In 2023 the City commissioned an analysis of the City's urban forest using a combination of high-resolution aerial imagery and airborne LiDAR (Light Detection and Ranging). This process established the current average canopy cover for the total Local Government Area (LGA) as 14.27%, including the Perth Airport Estate and South Guildford. (Note: the City of Belmont's boundary was amended in 2017 to include a small portion of South Guildford, increasing the total land area of the LGA).

While canopy remains a key component of the urban forest and a useful indicator of success, the City's *Urban Forest Strategy 2025-2035* takes a 'whole-of-forest' approach in recognition of the cumulative benefits green infrastructure provides when managed in an integrated manner<sup>3</sup>.

## 1.2 Strategic alignment

The City of Belmont's *Strategic Community Plan 2024- 2034* is the key informing document which outlines the City's vision and plan for the future. It provides strategic direction for the organisation and informs the City's supporting policy framework. This Urban Forest Strategy makes a significant contribution towards the desired outcomes in the *Strategic Community Plan 2024-2034* and reflects the community's aspirations for a green, healthy, and sustainable City.

Figure 1: Desired outcomes featured in the Strategic Community Plan 2024-2034.





The Urban Forest Strategy complements several strategic documents which have a clear environmental focus, building upon a decade of work by the City. This strategy, together with the City's *Strategic Community Plan*, *Public Open Space*, *Streetscape Enhancement*, and *Environment and Sustainability* strategies, forms a robust framework for the sustainable management of the City's urban forest.

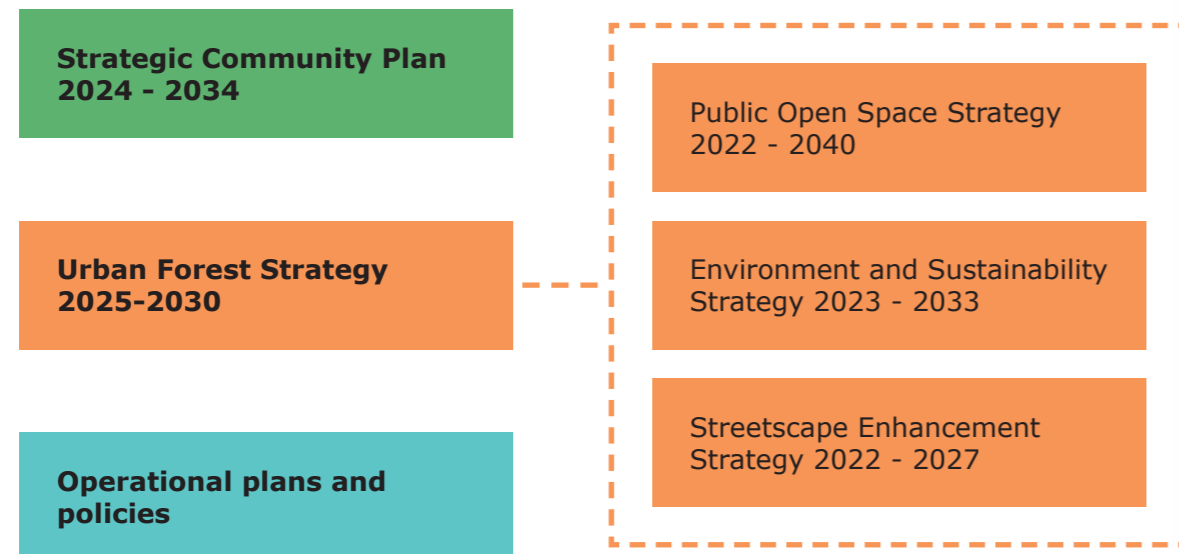


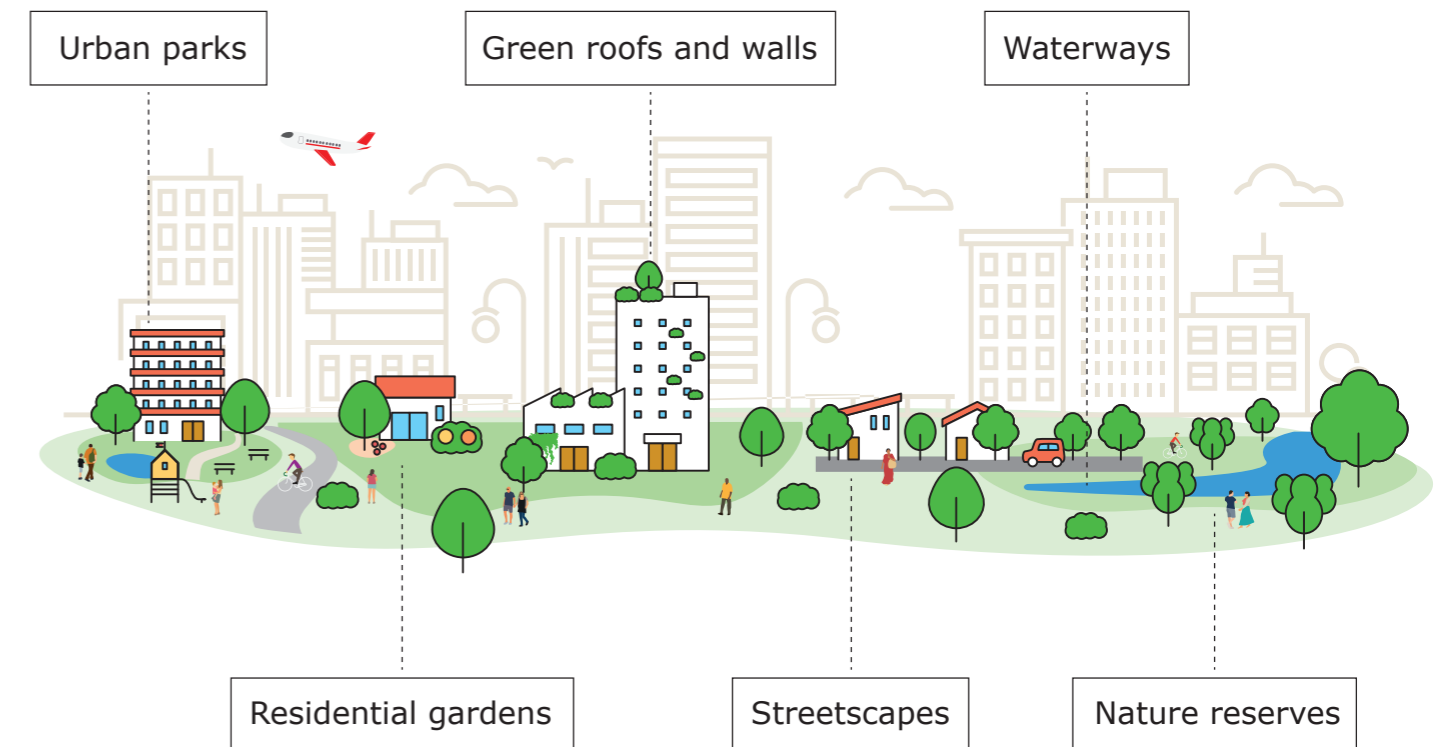
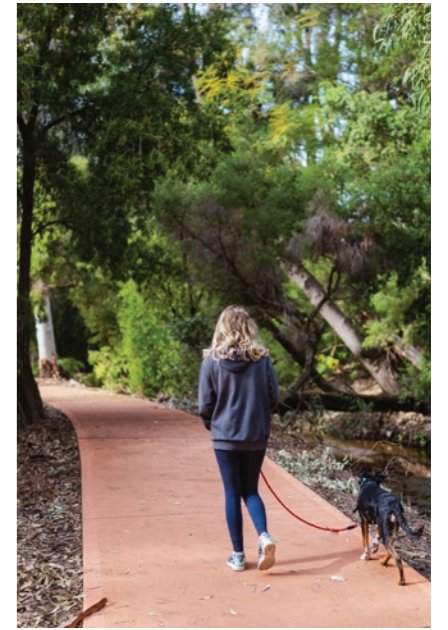
Figure 2: City of Belmont's strategic framework for management of the urban forest.

### 1.3 What is an urban forest?

The term 'urban forest' refers to all elements of green infrastructure (trees and plants) growing in an urban environment, on both public and private land<sup>4</sup>. This includes parks, natural areas, utility corridors, streetscapes, community gardens, green walls or roofs, and any other vegetation.

Urban Forestry combines the disciplines of arboriculture, urban planning, landscape architecture, engineering and economics. It is defined as the science of *managing trees and natural ecosystems in and around urban areas to maximise the physiological, sociological, economic and aesthetic benefits that trees provide the wider community*<sup>5</sup>.

A healthy and resilient urban forest is characterised by a diverse range of species, structural layers and age classes. The more diverse the forest, the more benefits it provides – from shade and insulation to screening and visual amenity. Well-designed cities that consider the spatial arrangement and distribution of green infrastructure can provide vital habitat and ecological connectivity through the urban landscape<sup>6</sup>.



## 1.4 Benefits of an urban forest

Trees and other vegetation are critical components of a healthy urban environment and, through natural processes, provide a wide range of ecosystem services such as improving air and water quality, nutrient cycling and thermal regulation<sup>7</sup>. Urban forests are widely recognised and valued for the environmental, social and economic benefits these services provide, particularly in highly developed areas. Planning for green infrastructure is a key focus in urban design policy at an international, national, state, and local level, due to its demonstrated effectiveness in boosting the sustainability and resilience of cities and communities<sup>8</sup>.



Figure 3:  
Benefits of an  
urban forest.

### 1.4.1 Environmental benefits

#### Biodiversity



The southwest of Western Australia is a recognised global biodiversity hotspot<sup>9</sup>. Many of our local species are endemic to this region and rely on native vegetation for habitat and food provision. Biodiversity is a reliable indicator of ecosystem health. Forests with high species diversity are more resistant to pest and disease pressure and our changing climate. By promoting species diversity, we are growing a stronger, healthier and more resilient urban forest<sup>10</sup>.

#### Enhancing habitat



As urban areas increase in both size and density, vegetation becomes increasingly fragmented. This limits the carrying capacity of the habitat and can cause native fauna to become isolated, increasing the risk of negative interactions such as vehicle collision. Improving the quantity, quality and connectivity of the urban forest is essential to restore habitat and ecological corridors in urban areas<sup>11</sup>.

#### Improving air quality



As an inner-city council, our community is exposed to pollutants from high volumes of traffic and industrial land uses. Urban forests act as natural filters, intercepting particulate matter and absorbing pollutants from the air such as carbon dioxide, carbon monoxide, nitrogen dioxide and sulphur dioxide. These natural processes improve air quality and positively impact community health outcomes<sup>12</sup>.

#### Carbon storage



Carbon dioxide emissions are the primary driver of climate change in Australia, with the combustion of fossil fuels accounting for 90% of emissions<sup>18</sup>. Urban forests play a vital role in combating climate change through the process of carbon sequestration. Trees and other vegetation absorb carbon dioxide from the air during photosynthesis, storing carbon in their biomass and releasing oxygen back into the atmosphere<sup>19</sup>.

#### Stormwater management



Urban trees and other vegetation intercept and store water within their canopy, reducing the reliance on stormwater infrastructure during heavy rainfall events<sup>13</sup>. This water is then evaporated or absorbed into soil, providing moisture for plant growth and contributing to urban cooling through evapotranspiration<sup>14</sup>. Excess water continues to infiltrate the soil profile, filtering and removing contaminants, and recharging groundwater aquifers<sup>15</sup>.

#### Improving water quality



Cities are characterised by impervious materials and infrastructure, limiting infiltration. During rain events, water travels over surfaces as runoff, transporting heavy metals, hydrocarbons, sediment and other pollutants to stormwater<sup>16</sup>. In the City of Belmont, stormwater flows directly into important water bodies including Tomato Lake, Centenary Park, and the Swan River. Increasing catchment permeability through Water Sensitive Urban Design (WSUD) reduces runoff and helps prevent water quality issues in our urban lakes and wetlands<sup>17</sup>.

#### Shading and cooling



Urban areas typically experience average temperatures several degrees warmer than surrounding areas – a phenomenon known as the Urban Heat Island (UHI) effect. The materials used in buildings and infrastructure attract, absorb and radiate heat, increasing surface and ambient temperatures. Local temperatures are also influenced by transport, industry, and electricity use<sup>20</sup>. Trees and vegetation help mitigate urban heat by providing shade, releasing moisture through evapotranspiration, and altering air flow, effectively cooling the surrounding area<sup>21</sup>. The health and wellbeing benefits are discussed further in the following section.

### 1.4.2 Social benefits

#### Improved wellbeing



The urban forest provides a valuable connection to nature that is often lacking in highly developed areas. Communities with access to high quality greenspace experience lower levels of stress and anxiety, and a stronger sense of general wellbeing<sup>22</sup>. Canopy cover alone is an effective indicator of mental wellbeing. A study in New South Wales found that neighbourhoods with less than 10% canopy cover experienced more than double the incidence of psychological distress compared with well-treed suburbs<sup>23</sup>.

#### Increased recreation



The physical health benefits of the urban forest are extensive and range from improved immune system functioning, shorter recovery periods, and reduced incidence of diabetes and obesity<sup>24</sup>. However, the positive effect on cardiovascular health is the most widely studied<sup>25</sup>. Access to parks and nature reserves provides the space and opportunity for everyday recreation such as walking the dog, sport, or simply meditating.

#### Character and sense of place



The urban forest enhances the amenity and landscape character of cities. Trees in prominent locations act as landmarks, while interlocking canopies form avenues and provide wayfinding functions. A single mature tree adds visual interest through scale, or when contrasted against the ever-changing fabric of our cities<sup>26</sup>. The form and aesthetics of trees and green spaces can create a unique sense of local identity.

#### Cultural significance



Trees and plants are often recognised and celebrated for their cultural significance<sup>27</sup>. Every Australian State and Territory has a unique floral emblem<sup>28</sup>, while other natives are featured in 'bush ballads', literature and art<sup>29</sup>. Species such as the mungie (*Nuytsia floribunda*) or 'WA Christmas tree', have important spiritual significance to Noongar people, connecting them to ancestors and the afterlife<sup>30</sup>. Others were valued as resources, providing bush tucker, tools and materials. A 'scar tree' at Garvey Park is one of several registered Aboriginal cultural heritage sites located in the City of Belmont<sup>31</sup>.

#### Reducing heat-related illness



Heat is the leading cause of weather-related illness and mortality in Australia<sup>32</sup>. Prolonged exposure to high temperatures can cause serious illness and exacerbates underlying conditions such as cardiovascular and respiratory disease<sup>33</sup>. These impacts are more prevalent in urban areas and projected to worsen under future climate scenarios<sup>34</sup>. Vulnerable populations are at increased risk due to low baseline health, social isolation, and restricted access to air conditioning and medical services<sup>35</sup>. Urban forests regulate ambient temperatures and promote cooling, improving thermal comfort<sup>36</sup>.

#### Improved social cohesion



Green, liveable neighbourhoods provide opportunity for neighbours to connect through daily activities. Residents living in well-treed areas with local greenspace spend more time outdoors, increasing social interaction, and fostering a sense of community identity and belonging<sup>37</sup>. Volunteer planting events bring people together to shape their local environment. Over time, the community can see their contribution to the urban forest grow, deepening a connection to place<sup>38</sup>.

#### Safer neighbourhoods



Crime prevention through environmental design (CPTED) has been a key principle of urban planning for several decades and a recognised best practice approach to enhance community safety<sup>39</sup>. Scientists have demonstrated the link between high ambient temperatures and negative psychosocial behaviour<sup>40</sup>. Studies in Australia and abroad are now refining the correlation between crime rates and canopy loss due to urban expansion<sup>41</sup>. Well-designed neighbourhoods with inviting and accessible green spaces increase activation and passive surveillance, deterring potential antisocial behaviour<sup>42</sup>.

### 1.4.3 Economic benefits

#### Increased property values



Urban forests enhance the streetscape appeal of neighbourhoods – a benefit which can now be expressed in monetary terms. Economic modelling reliably demonstrates the positive influence local canopy has on property prices<sup>43</sup>. Large-scale economic analysis across 23 Perth suburbs found that broad-leaved verge trees increased the median property price by nearly \$17,000<sup>44</sup>. A similar study in Sydney linked a 10% increase in canopy cover to a \$50,000 increase in average property value<sup>45</sup>. These results demonstrate the value that communities place on the aesthetics and landscape character provided by a healthy urban forest.

#### Reduced energy costs



Trees and vegetation promote cooling through shade and evapotranspiration, minimising reliance on air conditioning during our hot Perth summers<sup>46</sup>. They also act as effective windbreaks, reducing heating costs in winter, while green roofs and walls provide year-round thermal insulation. One Australian study asserts urban street trees provide a 5 to 10% reduction in annual heating and cooling costs<sup>47</sup>, while forests with greater structural diversity achieved even greater cooling potential<sup>48</sup>. This results in lower energy consumption, reduced greenhouse gas emissions and financial savings<sup>49</sup>.

#### Reduced asset renewal costs



A significant tree canopy can provide quality shade to community infrastructure, such as playgrounds and roads, increasing serviceability and asset lifespan. Well-developed canopies reduce UV exposure by up to 75%<sup>50</sup>, with subsequent reduction in maintenance and renewal costs. A 2009 study indicated that 20% canopy cover provided an average 11% improvement in pavement condition, resulting in up to 60% savings on resurfacing over a 30-year period<sup>51</sup>.

#### Reduced health care costs



Urban parks and spaces with shady trees, walking paths and wildlife are known to increase physical activity and improve physical and mental health<sup>52</sup>. The economic value of these health benefits has been studied extensively on an international scale and is of increasing importance in the context of future climate scenarios. In the Australian health sector, an increase in local canopy cover from less than 10% to 30% or higher is estimated to yield cost savings of \$19.3M for every 100,000 patients<sup>53</sup>.

#### Increased retail activity



Urban streets and commercial areas lined with trees and vibrant green spaces can significantly enhance the appeal of shopping districts, leading to increased economic activity and productivity of workers. Well-greened commercial areas with a higher number of large canopy trees attract more shoppers, encourage them to travel further, stay longer and visit more frequently, ultimately boosting revenue for local businesses<sup>54</sup>.



## 2 City of Belmont context

### 2.1 Pre-European settlement

"Goorgyp is the Whadjuk Noongar word for the Belmont area where the river runs through the land. The name may be derived from goorgeeba, the reeds on the riverbed, or koordjikotji, the reed warbler birds that live in them.

This area was part of a territory held by a family group of Noongar people known as the Beeloo. In 1829, at the time of colonization the family was headed by

Munday. He is remembered locally through the naming of Munday Swamp, an ancient turtle fishing ground at the edge of Perth Airport.

The Swan River and local waterways such as Tomato Lake were ideal for hunting and fishing. The Wargyl, the creation serpent was said to have formed the Swan River as he moved towards the sea. The deep part of the river where the banks dropped off sharply was said to be patrolled by the Wargyl, and swimming in that area was forbidden. The original route

of Great Eastern Highway was based on traditional Aboriginal Dreaming trails, leading Noongar communities to the coast and the hills." (Nannup, 2023)

The land on which our City exists today was once a diverse ecosystem, comprised of low-lying wetlands and open forests and woodlands, characterised by jarrah, marri and wandoo along the foreshore, with banksia woodlands extending southeast from the river<sup>55</sup>.



Figure 4: Early plans of the City of Belmont from 1847.

Figure 5: Aerial image of the City of Belmont. March 2025.



### 2.2 Early development

The development and expansion of the last century has significantly altered the natural landscape of the Perth region. Vegetation was systematically cleared, and wetlands were drained, providing fertile soil for pastoral land and market gardens<sup>56</sup>. The district was named after Belmont Farm, one of the first farms to be established in the Swan River Colony. Vast allotments provided the space and opportunity for horse racing, which has been a prominent feature of Belmont's local identity since the late 1840s<sup>57</sup>.

The area has been shaped by periods of rapid growth, particularly during the 1890s goldrush and the post-war era. Housing demand

incentivised subdivision of allotments and settlement expanded into new neighbouring suburbs. The conversion of the air force base to a commercial airport after the war, along with increasing construction and land costs, led to development of Belmont's thriving industrial precinct<sup>58</sup>. Local employment further stimulated housing demand prompting the creation of several new parks including Miles Park, Selby Park and Tomato Lake Reserve<sup>59</sup>.

The proximity to Perth City and access to key transport routes and infrastructure, including the domestic and international airport, positioned Belmont as a freight and logistics hub, facilitating the City's expansion into the 20th century.

### 2.3 The City of Belmont today

Today, the City of Belmont spans 3,965 hectares and comprises a mix of land uses, around 79% of which is privately owned land (3,145 hectares). Well-developed industrial, commercial, and mixed-use precincts continue to support a thriving local economy, with several commercial retail and entertainment precincts including Belmont Business Park, and the Kewdale Industrial Estate which accommodates transport, postal, and warehousing operations. Road reserves account for 583 hectares, including major distributor roads managed by Main Roads WA, such as Tonkin and Leach Highways.



An estimated 5,000 local businesses support over 63,000 jobs, with over 20% of local employment in the transport, logistics and warehousing sector. The City has remained a logistics hub, delivering freight services on a local, regional, national and international scale. In 2023/2024, the

City of Belmont's economy contributed \$11.08 billion, or 2.64%, to Western Australia's Gross State Product (GSP)<sup>61</sup>.

This unique character brings both opportunities and challenges. The City of Belmont is one of 11 Councils in the Perth Metropolitan area with a hard surface proportion

of over 50%<sup>62</sup>. City-managed public open space accounts for 237 hectares, just under 6% of the total land area. This includes sections of the Swan Canning Riverpark, land for stormwater detention and conveyance purposes, and other land vested in the City's care and control.

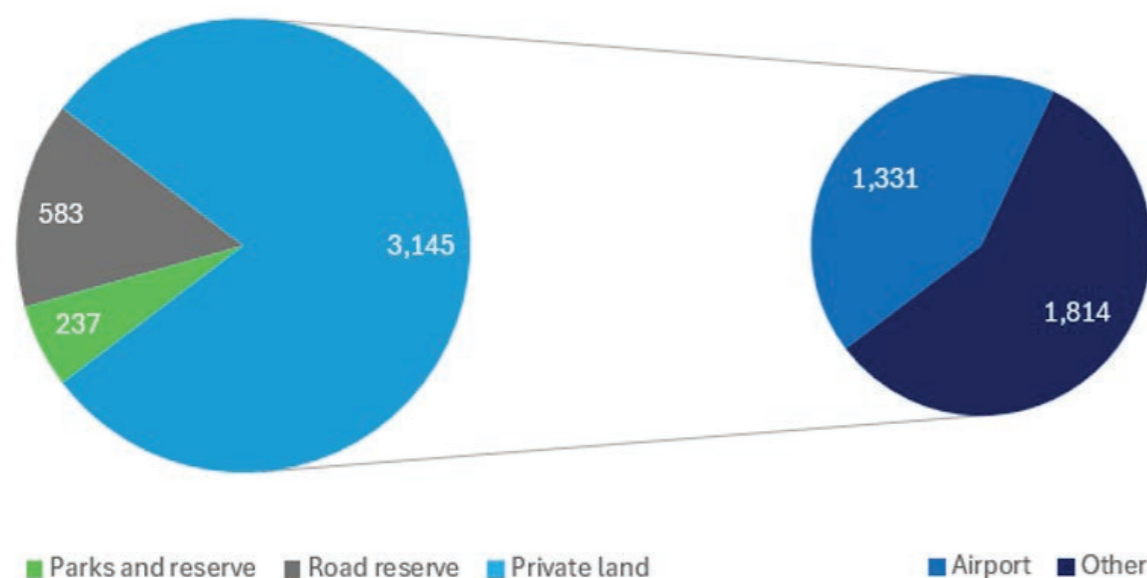


Figure 6: Total area (ha) per Land Type in City of Belmont

## 2.4 Our community

The City of Belmont is home to a culturally and linguistically diverse community with over 40% of residents born overseas<sup>63</sup>. The population is estimated at 46,133, having more than doubled over the last 30 years, and is projected to reach over 62,000 by 2046<sup>64</sup>.

The most significant change to the urban landscape in Belmont over the last five years has been the increased density of residential developments<sup>65</sup>. In 2021, medium and high-density housing made up 37% of residential properties – 13% higher than the wider Perth average. This is reflected in residential demographics, with the largest category of dwellings being sole-person households, and a 40% rental population<sup>66</sup>. Further population growth will be accommodated through both high-density residential and infill development, increasing the importance of well-provisioned, multi-functional and accessible public open space. Several high-density developments have been identified in Rivervale, Belmont and Ascot; with additional supply of medium-to-high density housing in the Redcliffe area<sup>67</sup>.

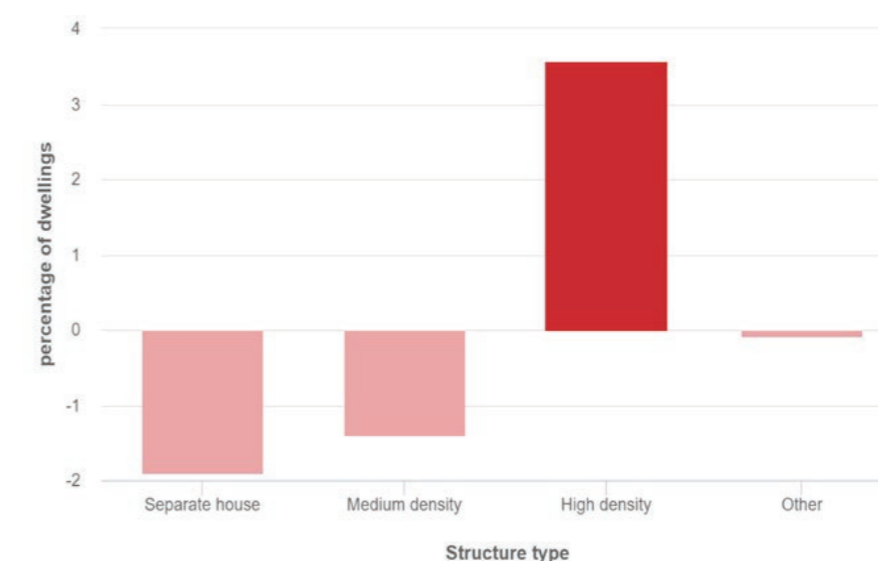
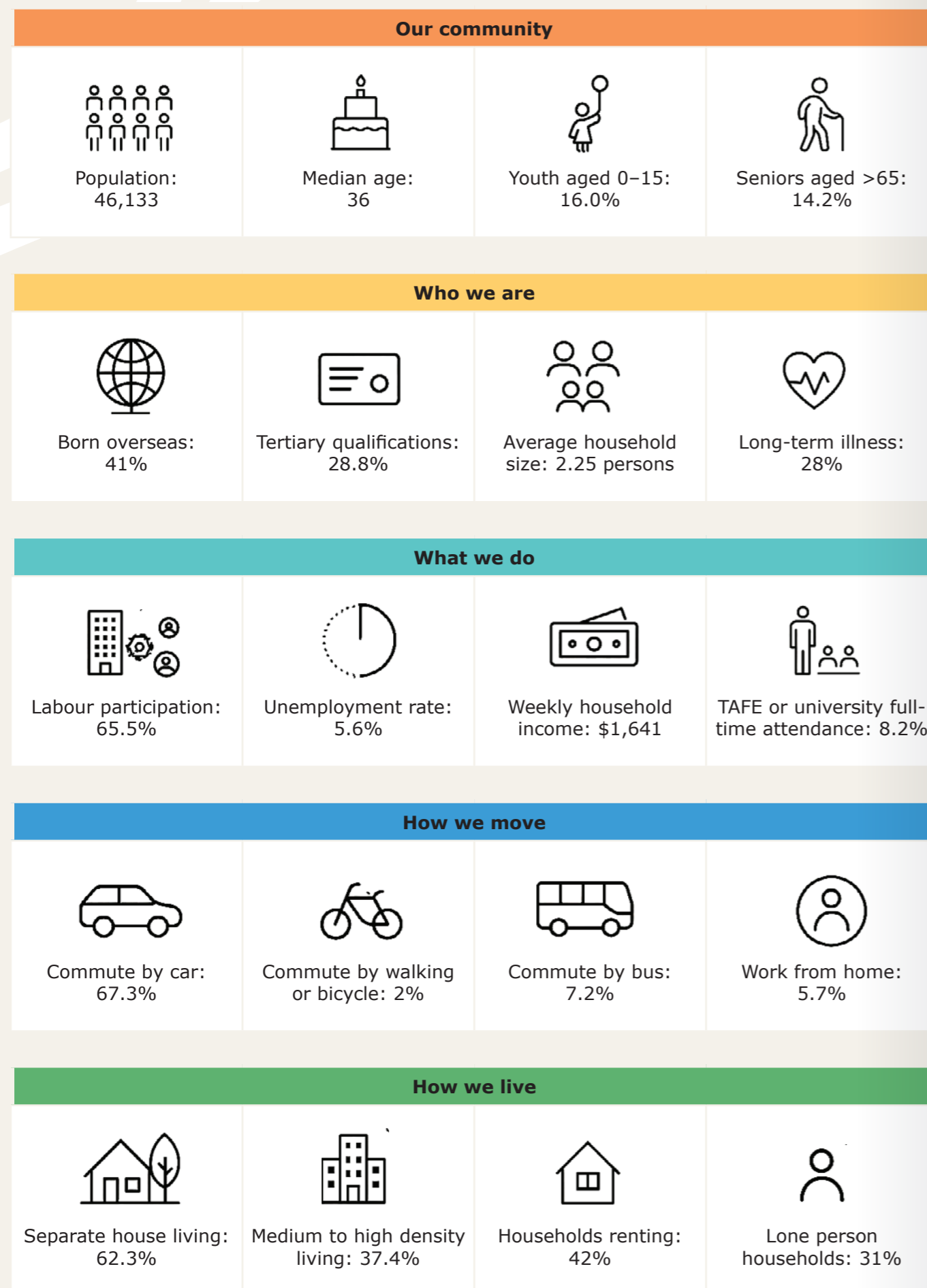


Figure 7: Change in dwelling structure in City of Belmont from 2016 to 2021 (ABS 2016,2021)

Household demographics vary notably between suburbs representing a diverse housing market. In recent years, the area has attracted a large population of young professionals, workers and couples. Almost three quarters of the City's residents work outside of the LGA highlighting the City's role in providing affordable housing options for city-based workers. A large percentage of households in the City do not own a car, indicating higher community reliance on public and active transport methods. In fact, 7.6% of Belmont residents use a bus to travel to work – twice the Perth average. The local government area is serviced by an extensive bus network with connections to Perth City, the airport, and other regional destinations<sup>68</sup>.



The City's approach to tree management and planning must be informed by the needs and expectations of our community. For this reason, it is critical the City understands the perceived value that residents and businesses place on our urban forest and the role it plays in the community. Increasing community awareness of the benefits trees provide in urban environments helps to foster a sense of ownership and connection to the urban forest, leading to greater participation, support and overall satisfaction<sup>70</sup>. An effective approach to community engagement will continue to be a critical component of the City's ongoing management of the urban forest.

The engagement was delivered over a 4-week period using multiple channels including social media and Belmont Connect. The City received 254 survey responses with over 650 unique suggestions provided on the development of the urban forest. This data was collated with the City's most recent Catalyse survey results to inform the strategy's key objectives.

The success of the City's existing greening initiatives was evident, with respondents praising the 'Verge Garden' and 'Trees for Residents'

programs and welcoming further expansion. Survey participants also advocated for more educational workshops and materials to improve community awareness. Planting within the public realm, including street verges and medians, was another key priority with over 80% of participants indicating a high level of support for increased street tree planting.

Survey results also delivered a clear message of community support for the introduction of policy mechanisms to incentivise urban greening and tree retention. Urban development was identified by 78% of respondents as the greatest threat facing today's urban forest. Climate change (47%) and a lack of public awareness (46%) also rated highly, with innovative urban design playing a critical role in addressing climate adaptation and resilience.

Figure 9: Word cloud proportionately displaying prominent themes in survey responses



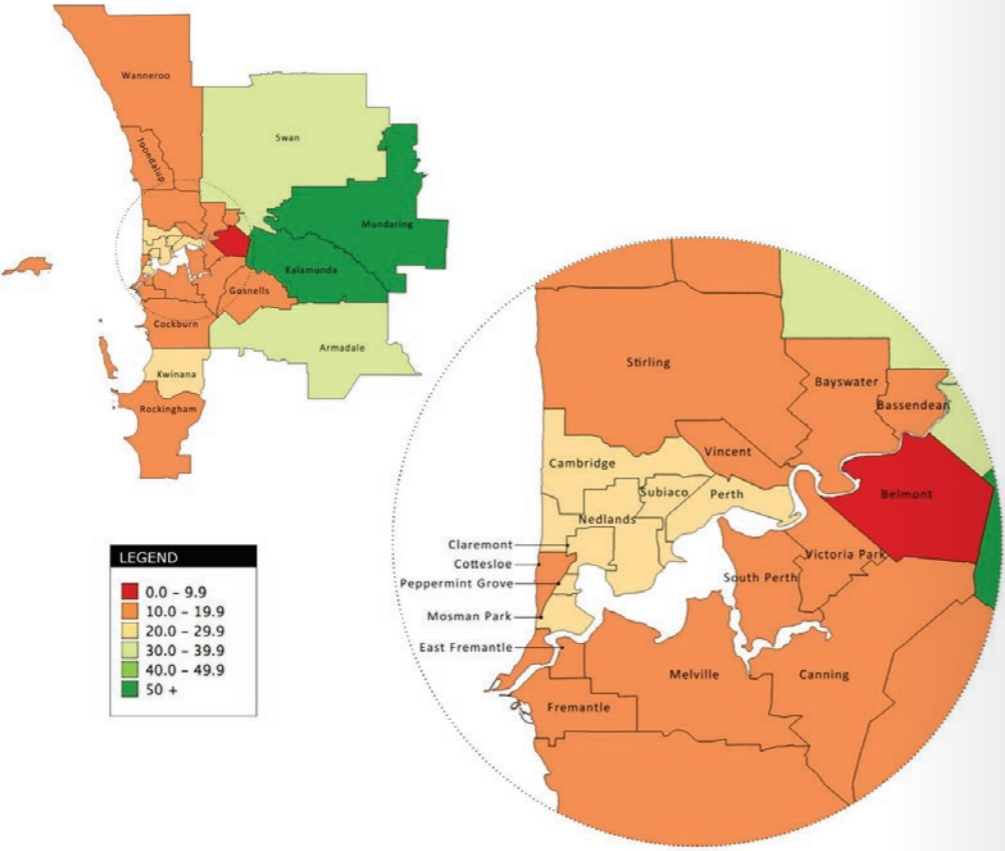
### 3 Our urban forest

#### 3.1 Our urban forest journey

Canopy mapping is an efficient method for land managers to compare and monitor tree cover over time at defined spatial scales. High-resolution imagery can identify variations in canopy area, condition, volume and height with a high level of precision, enabling early identification of canopy change (growth and loss). Data can be filtered and analysed to guide strategic decision-making, inform planning policy and canopy growth projections, and evaluate the effectiveness of greening initiatives and urban forest management practices.

In 2014, researchers delivered Australia’s first benchmarking report comparing urban canopy cover in metropolitan areas across all States and Territories. In Western Australia, 29 Local Government Areas were analysed, representing 64% of the State’s population. *i-Tree Canopy*, a peer-reviewed software package which applies statistical algorithms to satellite imagery, was used to calculate canopy cover within each LGA boundary. Based on 2011 imagery, the City of Belmont was identified as having the lowest tree canopy cover in the greater Perth region, at 9.1%<sup>71</sup>.

Figure 10: Canopy cover in the Perth metropolitan area (%) by Local Government Area (ISF & UTS 2014)



The City commissioned its own canopy mapping to inform development of its first Urban Forest Strategy in 2011. High resolution aerial imagery was used to retrospectively calculate canopy cover as at a chosen baseline of 2001. The process was then replicated using 2012 imagery to determine any change. Despite increasing canopy cover within public open space and road reserve, the data demonstrated a net loss of over 16 hectares of urban forest, all of which occurred on private land. In response, the City set an initial target in 2014 to meet or exceed the 2001 baseline canopy cover<sup>71</sup>.

#### 3.2 The urban forest today

The most recent analysis of the City’s urban forest was undertaken in 2023 using a combination of high-resolution aerial imagery and airborne LiDAR (Light Detection and Ranging). LiDAR is a remote sensing technology which scans the ground surface with a long-range laser and can detect elevation changes in the landscape to a high degree of vertical accuracy ( $\pm 5\text{cm}$ )<sup>73</sup>. The data was then processed using a combination of software packages which apply algorithms to categorise the land surface. Vegetation was categorised into seven (7) height strata, ranging from groundcovers to large trees, with all vegetation greater than 2.5m high included as ‘canopy’. This process established the current average canopy cover for the total Local Government Area (including the Perth Airport Estate) as 14.27%.

The 2023 canopy survey data was analysed according to Land Use and Suburb. Nine (9) Land Use categories were applied, which include a combination of different Zones and Reserves under both the Metropolitan Region Scheme (MRS) and the City’s Local Planning Scheme (LPS) No. 15 (Table 1).

Table 1: Zones and Reserves in each Land Use category

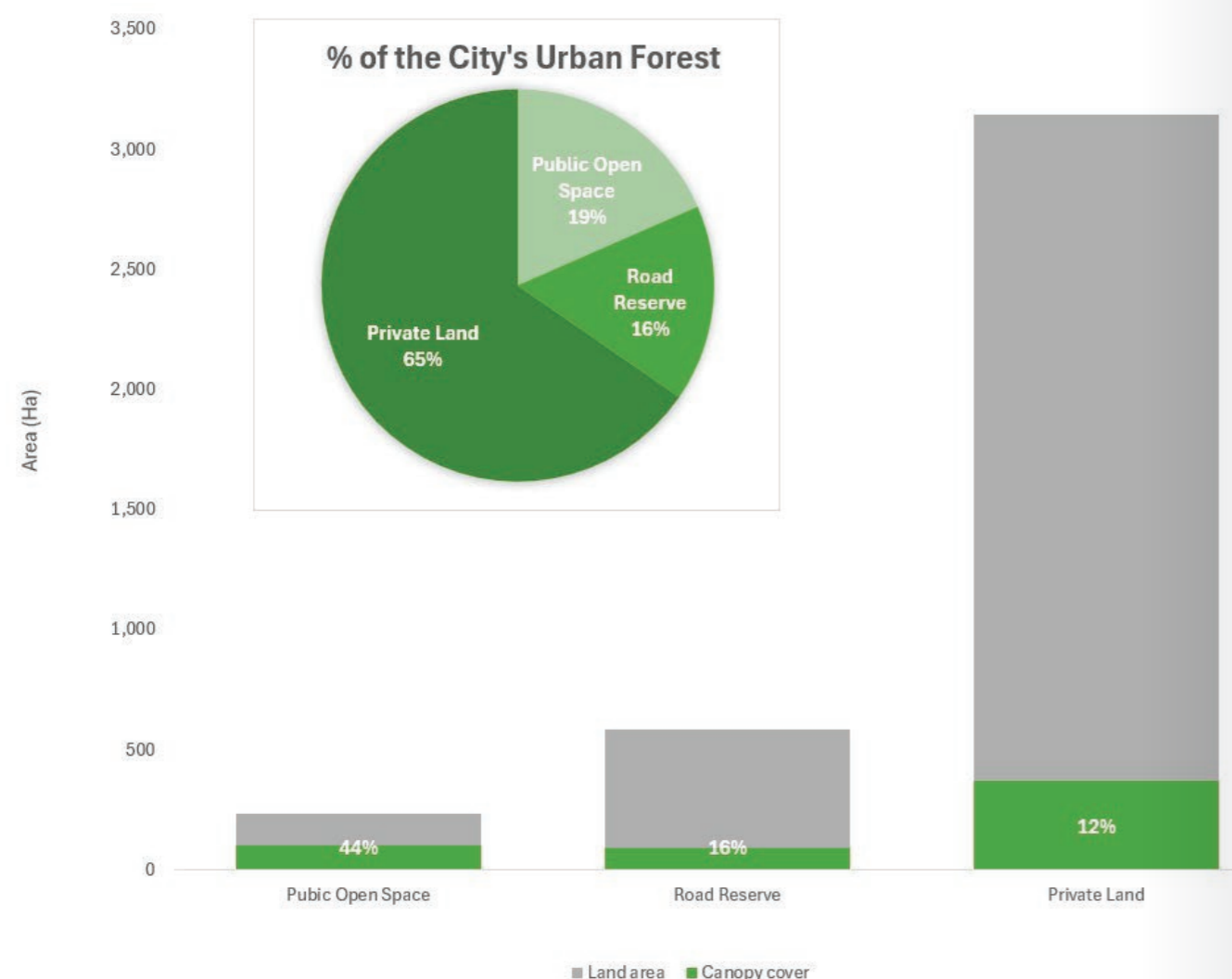
<b>Public open space</b>	<b>Parks and recreation</b> <b>Private recreation</b> <b>Ascot Racecourse</b> <b>Urban</b> includes Parks and Recreation (LPS)	<b>Civic and cultural</b> <b>Parks and recreation</b> <b>Residential</b> includes local parks zoned Residential, or which have no zone	<b>Special development precincts</b> mixed-use development, primarily for residential purposes
<b>Road reserve</b>	<b>Primary regional roads</b> <b>Other regional roads</b>	<b>Local roads</b> <b>Major distribution road</b>	
<b>Private property</b>	<b>Urban</b> includes Residential, Civic & Cultural, Commercial, Mixed-Use, Special Development Precincts, Public Purposes, Places of Public Assembly, Residential & Stables, Service Stations, Town Centre (LPS) <b>Public purposes</b> Perth Airport Estate and public schools <b>Industrial</b> <b>Railways</b>	<b>Civic and cultural</b> <b>Commercial</b> <b>Industrial</b> <b>Mixed business</b> <b>Mixed use</b> primarily residential purposes <b>Town centre</b>	<b>Place of public assembly</b> private schools and recreation, including Ascot Racecourse <b>Public purposes</b> public schools <b>Residential</b> <b>Residential and stables</b> <b>Service station</b>

Around 79% of the City's total land area is privately owned, with Perth Airport Estate being the largest commercial landholder. Under the Airports Act 1996, the Perth Airport Estate is governed by the Federal government and is therefore not subject to the City's statutory planning authority<sup>74</sup> under the state's planning framework. As 1,355 hectares of the airport estate fall within the City's LGA it accounts for over a third of the total land area.

Canopy cover as a percentage of total land area varies significantly by Land Use. Not surprisingly, the highest percentage cover is located within public open space (POS), including parks and reserves, foreshore areas, and other state government land. A large proportion of this land area is under the City's care and control, providing the greatest opportunity for urban greening.

Despite having only 12% total canopy cover, private property contains over 65% of the City's urban forest, some 33% of this is within the Perth Airport Estate.

Figure 11: Canopy cover as a percentage of land use category, with inset showing the % contribution of each land use category to the City's Urban Forest.



### 3.3 Canopy trends

Consistent and accurate canopy data collected at regular intervals is necessary to effectively monitor trends over time, inform realistic canopy targets, and prioritise greening initiatives. In preparation of this Strategy, a range of data sets between 2009 and 2023 were analysed to measure the change in the City's canopy cover over time. Unfortunately, the methodology and categorisation vary between sources, making a reliable measurement of change difficult.

To establish general trends, the raw data from the City's 2016 and 2023 canopy surveys was analysed according to land use category to enable comparison. Over this seven-year period, the City gained a total of 63.60 hectares of urban forest. The greatest increase in canopy cover (excluding Perth Airport Estate) was achieved in the City's public open space, which saw an increase in canopy cover of 18.47 hectares. However, the loss of 13.82 hectares of canopy from residential land over the same period has somewhat muted this achievement, with trees on private property increasingly removed to accommodate infill development.

These results demonstrate the positive impact the City's urban greening initiatives have had within the public realm. However, with 65% of the City's current canopy cover located on private property, the potential loss of this canopy represents the greatest risk to growing the urban forest.

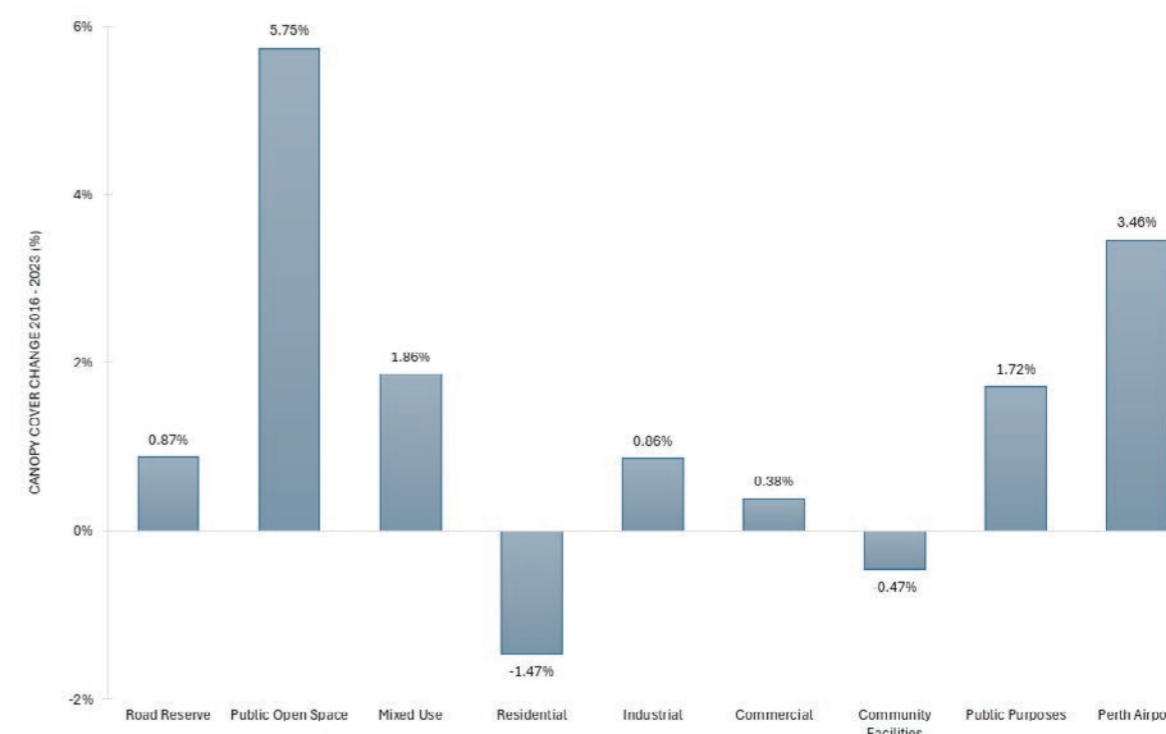


Figure 12: Percentage change in canopy cover per land use category between 2016 and 2023

### 3.4 Suburb profiles

Across the City there has been an increase in canopy cover from 12.67% in 2016 to the current 14.27%. This growth has not been even across the City's suburbs with Cloverdale and Rivervale experiencing a net loss in canopy over this period – see Figure 13 below.

Ascot and South Guildford are best provisioned by urban forest, with 24.7% and 22.6% canopy cover respectively. They are the only two (2) suburbs with over 20% canopy cover, having both seen an increase in canopy cover over the last seven (7) years, benefiting from large areas of river reserve. Kewdale, Belmont and Redcliffe all experienced

minor canopy expansion (less than one percentage point). Suburbs with a higher proportion of commercial and industrial land, such as Belmont, Kewdale and the Perth Airport Estate, have the lowest average canopy cover (between 10 and 15%) due to the prevalence of hard surfaces and built infrastructure.

Figure 13: Change in canopy cover per suburb as a percentage of total land area (2016 to 2023).



#### Ascot

Ascot has a residential population of 3,095 over 370 ha. It is one of the City's most unique suburbs with Ascot Racecourse and the residential stable precinct (combined land use of 91.7 ha) representing a quarter of Ascot's total land area.

Between 2016 and 2023, Ascot has seen the largest increase in canopy cover (excluding Perth Airport). This growth was predominantly within the Swan Canning Riverpark which is City managed land.

The City manages 60 ha of foreshore reserves, which presents the greatest opportunity for the expansion of Ascot's urban forest.



Figure 14: Parcels canopy cover Ascot



## Belmont

The suburb of Belmont has a population of 6,959 people across 437 ha. A large portion of the suburb is comprised of Belmont Business Park (131 ha), in addition to low-density residential housing. Belmont has very limited City managed land and is reliant on private land for urban forest growth.

The City manages approximately 18 ha of public open space in Belmont. One of the largest pockets of remnant bushland (4 ha), Signal Hill, is found within Belmont.



### Parcels Canopy Cover

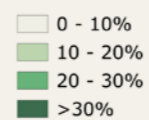


Figure 15: Parcels canopy cover Belmont

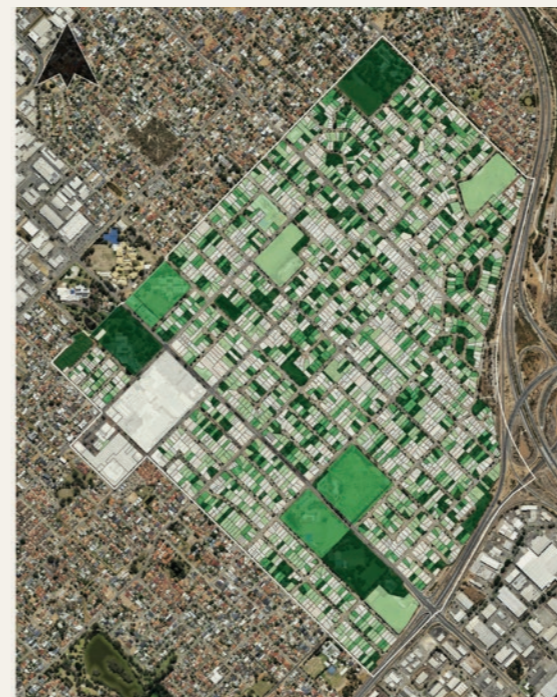
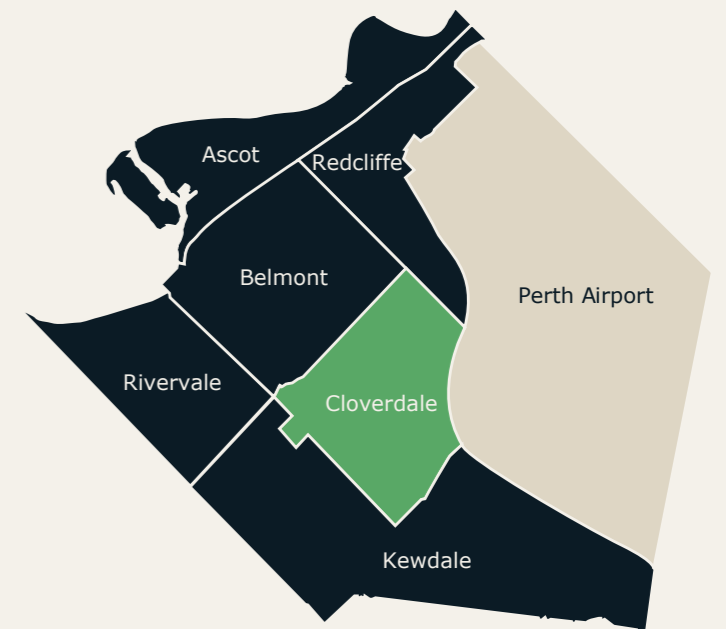


## Cloverdale

Cloverdale has a residential population of 8,864 people across 394 ha. The primary land use of Cloverdale is residential (194 ha).

Cloverdale recorded a loss of 1.29 ha of canopy between 2016 and 2023, largely due to ongoing residential densification resulting in the loss of trees on private property.

The rate of residential development in Cloverdale doubled between 2024 and 2026, with further growth predicted over the next 10 years<sup>75</sup>.



### Parcels Canopy Cover

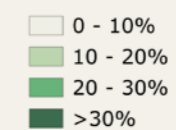


Figure 16: Parcels canopy cover Cloverdale



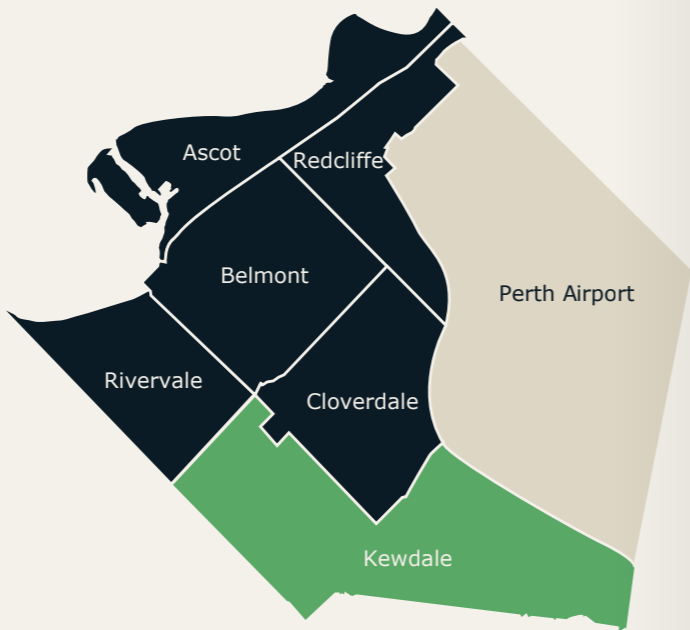
# Kewdale

Kewdale has a population of 7,397 across 771 ha. This suburb is comprised of residential and industrial separated by Leach Highway.

Kewdale Industrial Area accounts for approximately 440 ha, contributing to Kewdale's average canopy cover of just 10.54% - the lowest in the LGA.

Achieving urban forest growth in industrial precincts such as Kewdale will be a significant challenge, but there is opportunity within the parcels of Water Corporation land (13 ha) spread throughout the area.

The City manages approximately 30 ha of public open space within Kewdale, including Tomato Lake (21 ha).

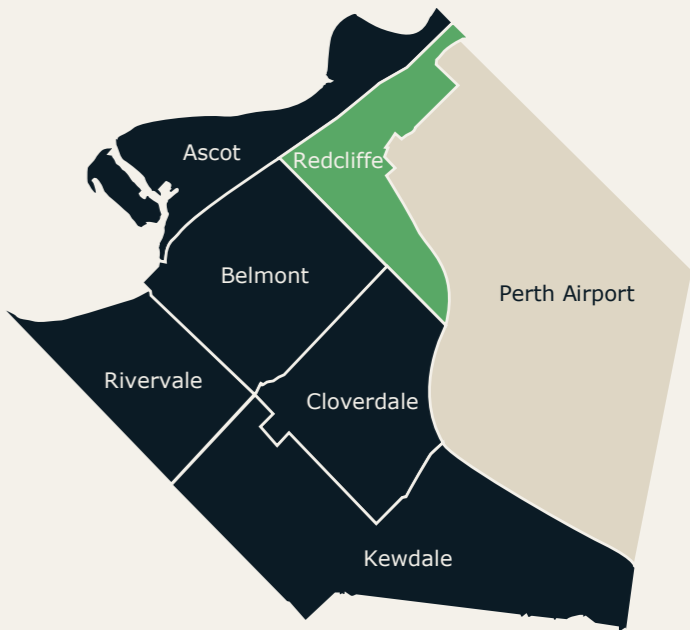


# Redcliffe

Redcliffe has a residential population of 5,030 across 272 ha. This is primarily a residential suburb with a pocket of industrial area.

Development Area 6 within Redcliffe will see significant redevelopment in the coming years. This presents an opportunity to expand our urban forest with better quality public open space and development.

Redcliffe is home to some of the City's larger public open spaces, such as Redcliffe Park and Brealey Avenue, with a total managed area of 30 ha.



**Parcels Canopy Cover**

- 0 - 10%
- 10 - 20%
- 20 - 30%
- >30%

Figure 17: Parcels canopy cover Kewdale



**Parcels Canopy Cover**

- 0 - 10%
- 10 - 20%
- 20 - 30%
- >30%

Figure 18: Parcels canopy cover Redcliffe

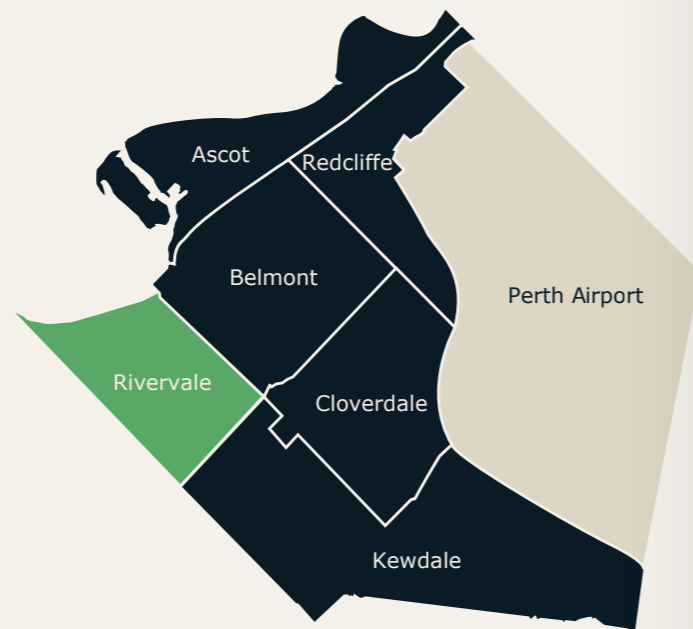


## Rivervale

Rivervale is the most densely populated suburb in the City of Belmont, with residential population of 10,897 across 330 ha. It has a combination of high-density apartments along the river's edge and low-density suburban housing.

Rivervale lost 1.4 hectares of urban forest between 2016 and 2023. Much like Cloverdale, predicted increases in high-density urban development are likely to result in further canopy loss.

Rivervale has the lowest provision of accessible public open space of any suburb (approximately 15.9 ha) which limits opportunities for urban forest expansion.



**Parcels Canopy Cover**

0 - 10%  
10 - 20%  
20 - 30%  
>30%

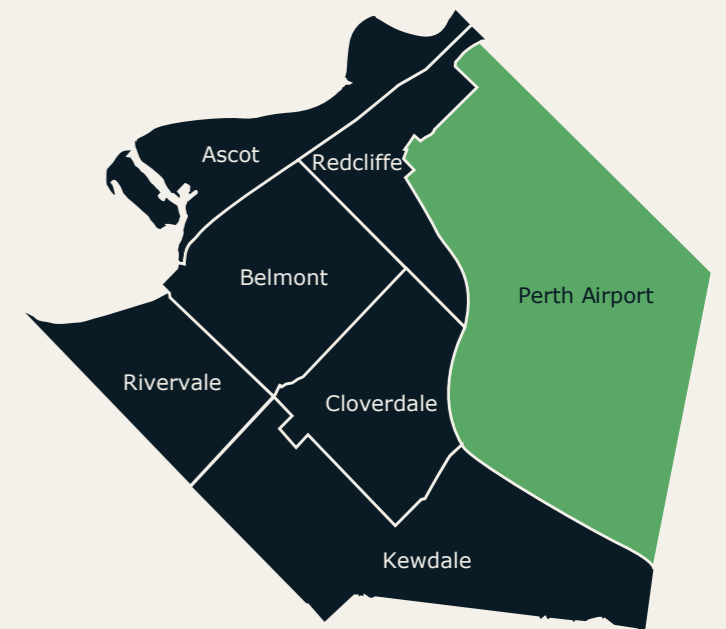
Figure 19: Parcels canopy cover Rivervale



## Perth Airport

A significant portion (1,335 ha) of the Perth Airport Estate sits within the City of Belmont, including a combination of airfield, terminals, commercial properties, road reserve and native bushland. The estate is managed by Perth Airport Pty Ltd and governed under Federal legislation.

Although the average canopy cover across the Perth Airport Estate is only 10.9%, this makes up approximately 148.3 hectares and accounts for over 28% of the urban forest contained within the City's LGA. A high percentage of this canopy cover is located within the native bushland and includes remnant vegetation, and the Federally listed Banksia Woodlands Threatened Ecologically Community (TEC), in addition to several other priority flora species. Over recent years Perth Airport, in collaboration with Main Roads WA, has invested in its landscape infrastructure adding additional trees and groundcover plantings to its road network.



**Parcels Canopy Cover**

0 - 10%  
10 - 20%  
20 - 30%  
>30%

Figure 20: Parcels canopy cover Perth Airport

## 4 Key challenges

### 4.1 Urban development

Within the last few decades, the average Australian home has changed dramatically. Detached houses with large front and back yards are increasingly subdivided into medium and high-density dwellings. This trend is attributed to various factors including growth of urban populations, land availability, construction costs and a shift in consumer priorities. Perth has the smallest average lot size in Australia, at just 399 square meters. Contemporary housing designs seek to maximise the internal living space on small lot parcels, leaving less room for trees and other vegetation<sup>70</sup>. As suburban backyards disappear, it is critical that the extent, distribution and quality of public open space and canopy cover is a key consideration in urban planning policy.



### South Guildford

A small section of land in South Guildford (36 ha) was transferred to the City of Belmont during a boundary realignment in 2017. It includes a combination of the Swan Canning Riverpark and foreshore reserve, native bushland and industrial land with an average canopy cover of 22.6%.

A large portion of this land is managed and maintained by the Department of Planning Land and Heritage. The City is working closely with the Department to identify tree planting opportunities and explore the development potential of the area in line with the City's Public Open Space Strategy 2022-2040.



Figure 21: Parcels canopy cover South Guildford

#### Parcels Canopy Cover

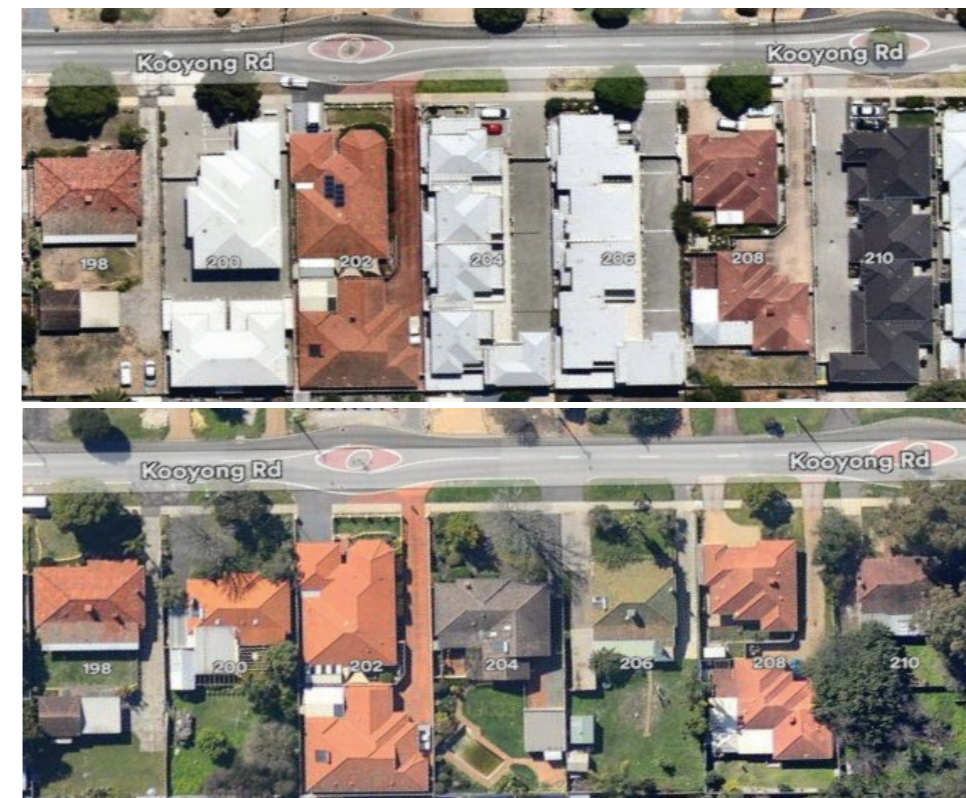
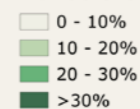


Figure 22: Example of typical infill development - Kooyong Road, Rivervale between 2011 and 2021

The supply of medium and high-density dwellings is a critical factor in addressing housing demand and cost of living pressures. Compact activity centres can help limit urban sprawl and improve liveability by increasing the connectivity of neighbourhoods. This contributes to improved community health and wellbeing outcomes by facilitating access to public infrastructure and health services, reducing commute distances, and increasing levels of outdoor recreation and active transport<sup>79</sup>.

The population of the Perth Peel region is projected to reach 3.5 million by 2050. To limit urban expansion within a defined metropolitan footprint, the State Government has introduced ambitious targets to increase the average residential density in the region by 50%, with 47% of new dwellings created through infill development. The Perth and Peel @ 3.5 million frameworks identify the proposed activity centres and development precincts to accommodate this growth. The City is located in the Central sub-region, categorised as a secondary strategic metropolitan centre. The suburbs of Belmont and Rivervale have been identified as activity centres with potential for further urban consolidation, while the Redcliffe Activity Precinct is projected to boost local housing supply with the addition of up to 4,000 medium-to-high density dwellings<sup>80</sup>.

Infill development is widely recognised as the key driving force behind canopy loss in urban areas in the Perth metropolitan region. The State Government's 2024 amendments to the Residential Design Codes (R Codes) do not provide any incentives for tree retention for the subdivision and development of single lots in R30-40 zones - the most common form of infill development. With 65% of the City's urban forest located on private property, infill development therefore poses the largest risk to its retention and development. The investigation of available policy mechanisms is considered a key action to address this issue as we move forward.

## 4.2 Climate change

As the impacts of climate change intensify, Perth will experience higher average temperatures and a significant reduction in annual rainfall<sup>81</sup>. Rainfall replenishes soil moisture levels, recharges the aquifer and flushes wetland systems. However, Perth's annual average rainfall has declined by around 20% since the mid-1970s, with a further 40% predicted reduction by 2060<sup>82</sup>.

Approximately 70% of the water used in the Perth and Peel region is sourced from groundwater, including domestic and industrial purposes<sup>83</sup>. The City relies heavily on groundwater for the irrigation of trees and

landscaped areas. Regular watering is needed during a tree's establishment period, typically a minimum three-year period, to ensure optimal growth and longevity. Persistently low soil moisture levels will negatively impact tree health and decrease the cooling potential of the forest through a reduction in evapotranspiration.

Reduced rainfall and over abstraction have caused water levels within the superficial aquifer to drop significantly. The Department of Water and Environmental Regulation (DWER) has indicated reductions to licence allocations between 10 to 30%<sup>84</sup>, highlighting water security as a significant risk to the ongoing management and expansion of the urban forest.

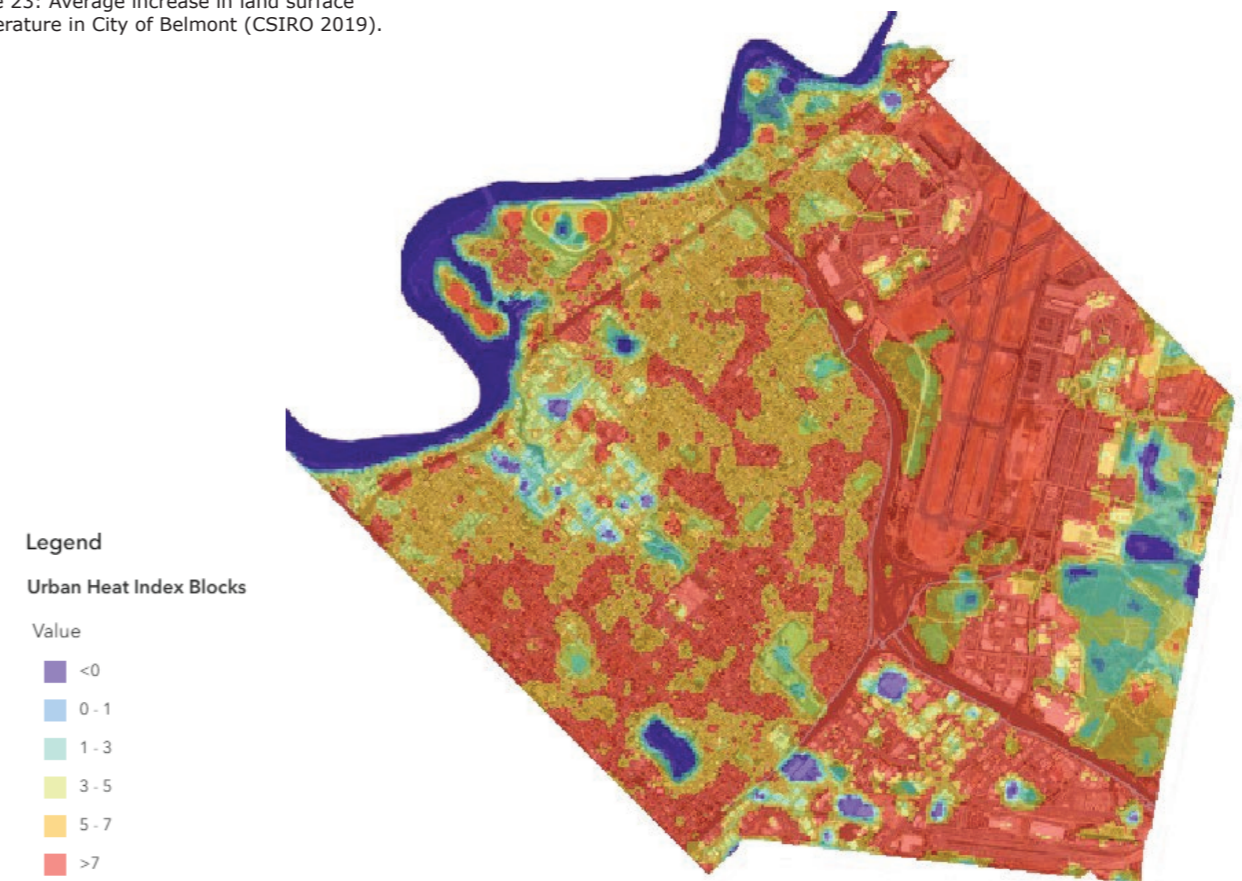


## 4.3 Urban Heat Island (UHI) effect

The 2021 Australia State of the Environment Report identified urban heat as a key challenge facing Australian cities which will be exacerbated by the effects of climate change. The impact of rising temperatures and an increased frequency of heatwaves is predicted to disproportionately impact cities and urban areas - a phenomenon known as the Urban Heat Island (UHI) effect.

The materials used in buildings and infrastructure typically absorb more heat compared to natural landscapes, causing higher average surface temperatures and ambient heat. This heat is radiated back into the surrounding environment, leading to higher evening temperatures<sup>85</sup>. This effect is demonstrated in the 2018-2019 Urban Heat Index data recorded by the CSIRO, which indicates a temperature difference of over 7°C in the City's built-up areas including the Kewdale Industrial Precinct and the Perth Airport Estate<sup>86</sup>. Prolonged exposure to high temperatures can lead to heat-related illness and exacerbate existing medical conditions, disproportionately impacting vulnerable populations.

Figure 23: Average increase in land surface temperature in City of Belmont (CSIRO 2019).



The City's urban forest will play an increasingly vital role in building community resilience to the effects of climate change. The *City's Public Open Space* and *Streetscape Enhancement* strategies acknowledge the role of the urban forest mitigating the UHI effect and identify the need to prioritise urban greening initiatives that target areas of high urban heat and low existing canopy cover.

Climate resilience within the forest must also be pursued, with one study finding over 50% of all urban forest species already exceeding their climatic tolerance range<sup>87</sup>. Elevated temperatures and concentrated heat from reflective surfaces can scorch leaves and bark, lowering the likelihood of survival during extreme heat events.

## 5 Urban forest – future focus

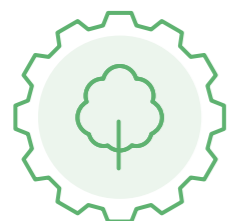
The City of Belmont aims to become one of Perth's most liveable and desirable inner-city locations, and recognises that a healthy, thriving urban forest is key to achieving this vision.

The range of benefits provided by urban trees increases as they reach their full horticultural potential - a timeframe which may span several human generations. Growing a forest for the future therefore requires

a commitment to manage the City's trees and other vegetation in the long-term interest of the community as a whole. This means ensuring the value of the urban forest is adequately recognised, considered, prioritised and planned for at a strategic level.

To achieve the City's vision for our future forest, the strategy proposes two (2) key focus areas:

1



**Manage and protect**  
our existing urban forest assets

2



**Expand and enhance**  
the urban forest,  
promoting  
resilience, diversity  
and connectivity

### 5.1 Manage and protect

The City's efforts in expanding the urban forest are evident in our parks, reserves, foreshores, bushland and streetscapes; with canopy cover increasing throughout the public realm. However, these efforts towards a truly connected and integrated urban forest are hindered by the loss of trees on private land – a trend which is evident throughout the Perth metropolitan region.

Trees need time to establish and grow before they can effectively provide ecosystem services, meaning the potential benefits may not be fully realised for many years, or even decades, as a tree develops to maturity. Therefore, the appropriate management and protection of existing trees is one of the most effective strategies to maximise the benefits the urban forest provides.

#### 5.1.1 Improve urban forest data

To effectively manage the urban forest, we must have a good understanding of its extent, distribution, health and condition. The consistent collection and analysis of urban forest data is essential for future planning and for effective monitoring of urban forest performance over time. The regular visual assessment of trees and other green infrastructure assets enables early identification of emerging issues such as pest and disease presence, water stress, or other vegetative decline.

The Local Government Insurance Scheme (LGIS) estimates tree related incidents make up around a third of all claims. Therefore, it is important the City documents its approach to managing tree risk, including the endorsed frequency and methodology of assessing and quantifying tree risk. Maintaining a thorough record of all tree assessments, including any action taken to address identified hazards, protects the City from undue liability.

To achieve this the City will:

1. Deliver a comprehensive inspection program to assess the health, structure and condition of City trees and other green infrastructure assets.
2. Invest in a comprehensive tree management software package which can record and manage tree audit data to support informed decision making.
3. Use tree audit data to estimate useful life expectancy (ULE) and develop succession planting plans which promote diversity in age-class distribution and mitigate the impacts of localised canopy gaps.
4. Undertake high resolution canopy mapping on a biennial basis for analysis at the LGA, suburb and lot parcel level.

#### 5.1.2 Communicate the value

With 65% of the City's canopy located on private land, the community plays a vital role in the success of the urban forest. There has been a high level of community support and participation in the City's existing greening initiatives and demonstrated demand for educational workshops and materials. Despite a consistently high level of support for urban greening initiatives from the wider community, individual responses to tree issues vary. Concerns such as leaf litter, allergies, or perceived risk can sometimes obscure the benefits that urban trees provide. An effective engagement strategy to raise awareness and increase community support through meaningful engagement opportunities will be an important element of the City's ongoing management of the urban forest.

To achieve this the City will:

1. Draw inspiration from successful community engagement campaigns to date and build on these to communicate the benefits of the urban forest to the environment and the community at large.
2. Identify legacy verges treated with synthetic turf and develop an engagement strategy to encourage their conversion to finishes that comply with contemporary standards

### 5.1.3 Recognise and protect existing assets

To achieve the City's vision for the urban forest there is a clear requirement to protect our existing tree canopy. As the density of inner-city suburbs increases, it is crucial that the benefits of development are carefully balanced against the loss of greenspace and canopy, and the resulting impacts on both the community and environment.

All trees located on land which is under the care and control of the City are protected under City Policy, Local Law, and in some cases, State legislation. A monetary value is assigned to all City trees proposed for removal using an endorsed tree valuation method. Not only does this disincentivise the unnecessary removal of trees, but it also ensures the community is adequately compensated for any loss.

Unlike other Australian states, the WA planning framework currently has no provision to regulate tree removal on private property. Considering 65% of the City's canopy is located on private land, the absence of a State-led planning mechanism to effectively regulate tree removal represents a significant risk to our urban forest.

In consideration of this, the City will:

1. Advocate for amendments to state planning legislation to strengthen protection of trees on private land.

## 5.2 Expand and enhance

The City of Belmont is the logistics hub of Western Australia. A thriving local economy supports over 60,000 jobs across several industrial, commercial, and mixed-use precincts. 79% of the Local Government Area is privately owned, with Perth Airport Estate occupying a third of the total land area. This makes expansion of the urban forest extremely challenging. Nonetheless, the City's average canopy cover increased from 9.1% in 2011 to 14.27% in 2023. In order to continue growing the forest and achieve maximum return on investment, the City will take a targeted approach to urban greening initiatives.

### 5.2.1 Develop and implement targeted urban greening

The majority of the City's canopy growth over the last seven years (excluding the Perth Airport Estate) has been achieved in public open space (POS). POS caters for a range of recreation needs, and at only 6% of the total land area, planting opportunities are finite. In order to expand the urban forest, the City has developed and is implementing targeted programmes such as its tree planting and streetscape enhancement programmes to maximise planting across POS, verges and streetscapes. The verge is crown land and forms part of the road reserve. Green verges have the potential to form important ecological corridors that connect parks, reserves, bushland and foreshore areas throughout the City. Well-designed streetscapes also facilitate pedestrian movement and encourage active transport, connecting



neighbourhoods, activity centres, business precincts, public infrastructure and community facilities.

To continue the expansion of our urban forest, the City will:

1. Use Spatial information to inform a targeted urban greening program which delivers on multiple social and environmental outcomes. Projects will be identified in walkable catchment areas and prioritised according to urban heat index and existing canopy cover.
2. Utilise high-resolution canopy mapping, obtained on a biennial basis, to monitor the effectiveness of the new Scheme and Local Planning framework in supporting an integrated planning approach that promotes high-quality development and urban canopy growth
3. Continue with existing tree planting programmes with an aim to plant 3,000 trees per annum across City-controlled land to 2030.
4. Actively seek opportunities to collaborate with State Government (e.g. Water Corporation, Main Roads WA, Department of Planning Lands and

Heritage) to deliver urban greening initiatives on underutilised land.

5. Strive for a city-wide increase in canopy cover across all land use types, and an absolute increase in canopy on land under the City's control that contributes to urban greening.

### 5.2.2 Encourage urban greening on private property

The City's community greening initiatives, including the 'Verge Garden' and 'Trees for Residents' programs, have been highly successful. Interest and participation remain strong across the community.

To build on this success, the City will:

1. Expand the 'Verge Garden Program' to non-residential land as a means of addressing low canopy cover in the industrial and commercial precincts.
2. Investigate incentivising tree retention on private property. For example, providing access to tree management tools and resources can empower residents and property managers to confidently manage trees on private property.

### 5.2.3 Plan for environmental change

To ensure our urban forest remains resilient into the future, the City must anticipate and plan for the impacts of a changing environment. Increasingly long, hot and dry summers are seeing the average establishment period for new trees increase from three (3) to five (5) years, with supplementary watering on a reactive basis in response to observed water stress. The cooling capacity of the forest is also impacted, with trees closing stomata to reduce evapotranspiration and preserve water.

A clear plan to build resilience and adapt to the impacts of climate change is essential to ensure the ongoing health and growth of the urban forest.

To support this, the City will:

1. Model future water demand to support increased tree planting and urban greening initiatives under a range of projected climate scenarios
2. Prepare an adaptive framework for the management of public open space in a drying environment.
3. Maximise species and age-class diversity across the urban forest.
4. Actively pursue partnerships with research institutions on contemporary and emerging urban forest issues, including scientifically rigorous trials of new and underutilised street tree species which are resilient to climate change, pest and disease, and other urban pressures.

### 5.2.4 Innovative urban design

It is increasingly difficult to establish and grow new trees in the urban environment. Below ground, compacted soils and underground services restrict root development, and impervious surfaces prevent water infiltration reducing soil moisture. Above ground, tall buildings block sunlight and create wind tunnels, and reflective surfaces concentrate heat burning leaf and bark tissue. Tree performance is further hindered by high ambient temperatures, increased disturbance and pollution, while tree canopy potential may be limited by conflict with buildings and other infrastructure requiring regular overpruning.

To support tree development in urban environments, the City will:

1. Investigate the use of engineered elements such as structural cells and soils, and stormwater harvesting infrastructure to support tree establishment and growth.
2. Develop a suite of design and construction notes which will allow the City to set the desired standards, provide technical guidance and ensure quality control for urban forest infrastructure.

## 6 Measuring success

A thriving and resilient urban forest is an integral component of any green, healthy, and well-connected city.

To support the City's vision for our future forest, an implementation plan which

captures all actions across the two key focus areas will be developed. Actions will be fully costed, prioritised and phased over a 5-year period.

The implementation plan will also establish the framework used to monitor and report on

the City's progress towards Strategy objectives in the City's annual report.



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City of  
**Belmont**

215 Wright Street, Cloverdale WA 6105  
Locked Bag 379, Cloverdale WA 6985  
Open 8:30am to 4:45pm, Monday to Friday  
☎ PH: (08) 9477 7222  
☎ A/H: (08) 9477 7224

✉ [belmont@belmont.wa.gov.au](mailto:belmont@belmont.wa.gov.au)  
🌐 [belmont.wa.gov.au](http://belmont.wa.gov.au)  
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